

(19) World Intellectual Property  
Organization  
International Bureau



553 522

(43) International Publication Date  
28 October 2004 (28.10.2004)

PCT

(10) International Publication Number  
**WO 2004/092064 A1**

(51) International Patent Classification<sup>7</sup>: **C01B 13/36**,  
C01C 1/18, 1/28, C01F 1/00, 5/00, 5/14, 5/16, 5/20, 7/00,  
7/34, C01G 1/00, 49/00

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(21) International Application Number:  
PCT/AU2004/000481

(22) International Filing Date: 13 April 2004 (13.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2003901788 15 April 2003 (15.04.2003) AU

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PRODUCTION OF LAYERED DOUBLE HYDROXIDES

(57) Abstract: A method for the manufacture of ammonium nitrate and LDH containing nitrate as an interlayer anion, the method including the steps of: (1) providing a source of nitric acid (2) providing a source of ammonia; (3) reacting ammonia with nitric acid to produce ammonium nitrate; (4) preparing a nitrate containing a first metal by reacting a compound containing the first metal with nitric acid or ammonium nitrate; (5) either: (a) preparing a nitrate containing a second metal by: (i) contacting a compound containing the second metal with nitric acid; or (ii) contacting a compound containing the second metal with ammonium nitrate; or (b) providing a compound containing the second metal; and (6) mixing the nitrate containing the first metal from step (4) with the nitrate containing the second metal or the compound containing the second metal from step (5) and ammonium hydroxide to form the LDH containing nitrate as an interlayer anion and ammonium nitrate. The method can be integrated with existing ammonium nitrate plants.

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